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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/723,967

Applicant(s)

LAURA, JOSEPH G.

Examiner

Ben C. Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's amendment dated June 8, 2007, responding to the Office action mailed March 8, 2007 provided in the rejection of claims 1-34, wherein claims 2-11, 15-20, 22-34, and 36-38 are remained as original, claims 1, 12-14, 21, and 35 are amended.

Claims 1-34 remain pending in the application and which have been fully considered by the examiner.

Applicant's arguments with respect to claims rejection have been fully considered but are moot in view of the new grounds of rejection – see both *Sridharan et al.*, *Tao et al.*, and *Huang et al.*, arts made of record, as applied hereto.

Claim Rejections – 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 21-34 are rejected under 35 U.S.C 101 because the claims are directed to non-statutory subject matter.

3. **As to claims 21**, a “compile listing stored on a computer-readable medium” and a “module stored on a computer-readable medium” are being cited; however, it appears that the compiler listing and the module would reasonably be interpreted by one of ordinary skill in the art as computer listings per se, are not physical “things”. They are

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neither computer components nor statutory processes, as they are not "act" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions. (See MPEP 2106.01(I))

4. **As to claims** 22-30, they do not cure the deficiency of base claim 21, and also are rejected under 35 U.S.C. 101 as set forth above.

5. **As to claim 31**, a "a reader component" and a "search component" are being cited; however, it appears that the reader component and the search component would reasonably be interpreted by one of ordinary skill in the art as computer listings per se, are not physical "things". They are neither computer components nor statutory processes, as they are not "act" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer readable medium

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encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions. (See MPEP 2106.01(I))

6. **As to claim 32**, a "display component" is being cited; however, it appears that the display component would reasonably be interpreted by one of ordinary skill in the art as computer listings per se, are not physical "things". They are neither computer components nor statutory processes, as they are not "act" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions. (See MPEP 2106.01(I))

7. **As to claims 33-34**, they do not cure the deficiency of base claims 21 and 32, and also are rejected under 35 U.S.C. 101 as set forth above.

Claim Rejections – 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 21-34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. **As to claim 21**, "a compile listed stored on a computer-readable medium", cited in line 3, and "a module stored on a computer-readable medium", cited in line 5, those two entities above CAN NOT act by themselves. They are neither computer components nor statutory processes, as they are not "act" being performed.

10. **As to claims 22-34**, they do not cure the deficiency of base claim 21, and also are rejected under 35 U.S.C. 101 as set forth above.

Claim Interpretation of Record for Claims 21-34

In the interest of compact prosecution, the Examiner subsequently interprets the above phrases "the compile listing", "the module", and "the component(s)" as being "a product claim" (emphasis added) and NOT "computer listing and/or software component(s)/module" (emphasis added) (non-statutory)" for the purpose of further examination.

Claim Rejections – 35 USC § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-4, 6-11, 12-14, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sridharan et al. (*On Building Non-Intrusive Performance Instrumentation Blocks for CORBA-based Distributed Systems*, March 2000, IEEE) (hereinafter 'Sridharan' - art made of record) in view of Tao et al. (*Understanding the Behavior of Shared Memory Applications Using the SMiLE Monitoring Framework*, March 2000, IEEE) (hereinafter 'Tao' - art made of record)

12. **As to claim 1** (Currently Amended), Sridharan discloses a system for non-intrusively monitoring an application (e.g., Abstract – a non-intrusive, reusable framework for collecting performance statistics of CORBA-based distributed systems is proposed; Sec. 2 – Properties for Monitoring System), comprising: a first module stored on a computer-readable medium that attaches to a memory area that is used by an application during real-time operation, the first module reads application values from the memory area that have been stored in the memory area by the application during real-time operation (e.g., Fig. 3 – System T and Performance Instrumentation, element of "PI"; P. 3, 1st Par. – The Visibroker ORB, which was used to deploy the servers,

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provided the facility to load the Performance Instrumentation (PI) module to together with the server into a single address space while starting the server using the Java VM; P. 3, 2nd Par. – 4th Par.); a second module stored on a computer-readable medium in communication with the first module that requests the first module to read the application values (e.g., Fig. 3 – System T and Performance Instrumentation, element of “ORB”; Sec. 5 – Instrumentation Framework, 1st Par. – The CORBA Interceptor facility allows interception of a CORBA call made to a server either at the client or server side; the interceptor facility is a CORBA implementation or ORB’s feature); and a third module stored on a computer-readable medium in communication with the second module, that displays the application values (e.g., Fig. 3 – System T and Performance Instrumentation, element of “PM GUI”; P. 3, last Par. – A GUI was implemented to display the various performance data, to set the filtering information and turn on and off the monitoring mechanism).

Sridharan does not explicitly disclose the second module receives the application values from the first module.

However, in an analogous art of Understanding the Behavior of Shared Memory Applications Using the SMiLE Monitoring Framework, Tao discloses the second module receives the application values from the first module (e.g., Sec. IV. – Designing A Tool Environment on Top of The SmiLE Monitoring Approach”, 5th Par. – A mechanism for mapping each memory location observed by the monitoring system to its corresponding program data structure identifier (procedure and variable names) is being implemented as well).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Tao into the Sridharan's system to further provide the second module receives the application values from the first module in Sridharan system.

The motivation is that it would further enhance the Sridharan's system by taking, advancing and/or incorporating Tao's system which offers significant advantages that it provides the programmer or system software with detailed information about all memory transactions over the network and the behavior of user-defined events as once suggested by Tao (e.g., Sec. I. – Motivation, 3rd Par., Lines 18-26).

13. **As to claim 2** (Original), Tao discloses the system wherein the memory area is further defined as a shared memory of the application (e.g., Abstract).

14. **As to claim 3** (Original), Sridharan discloses the system wherein the first module is further operable to attach to the memory area used by the application to read the application values (e.g., Fig. 4 – Performance Instrumentation (PI) Module – White Box View, element “I”; P. 3, 4th Par.).

15. **As to claim 4** (Original), Tao discloses the system wherein the application values are further defined as at least one application variable and a value for the application variable (e.g., Sec. IV. – Designing A Tool Environment on Top of The SmiLE Monitoring Approach”, 5th Par. – A mechanism for mapping each memory

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location observed by the monitoring system to its corresponding program data structure identifier (procedure and variable names) is being implemented as well).

16. **As to claim 6** (Original), Sridharan discloses the system wherein the third module is further defined as a graphical user interface (e.g., Sec. IV. – Designing A Tool Environment on Top of The SmiLE Monitoring Approach”, 5th Par. – A mechanism for mapping each memory location observed by the monitoring system to its corresponding program data structure identifier (procedure and variable names) is being implemented as well).

17. **As to claim 7** (Original), Sridharan discloses the system wherein the graphical user interface is further operable to receive an input identifying the application values to be read and operable to request the application values identified to the first module (e.g., Fig. 3 – System T and Performance Instrumentation, element of “PI”; Fig. 4 – Performance Instrumentation (PI) Module – White Box View, element “I”; P. 3, 7th Par – In Fig. 4, the thread labeled T1 posts the reception of the request P(P₁,P₂) as an event in the event service; P. 3, 1st Par. – The Visibroker ORB, which was used to deploy the servers, provided the facility to load the Performance Instrumentation (PI) module to together with the server into a single address space while starting the server using the Java VM; P. 3, 2nd Par. – 4th Par.), via the second module (e.g., Fig. 3 – System T and Performance Instrumentation, element of “ORB”; Sec. 5 – Instrumentation Framework, 1st Par. – The CORBA Interceptor facility allows interception of a CORBA call made to a

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server either at the client or server side; the interceptor facility is a CORBA implementation or ORB's feature), and wherein the first module is operable to read the requested application values data from the memory area and return the application variables to the graphical user interface (e.g., Fig. 3 – System T and Performance Instrumentation, element of “PM GUI”; P. 3, last Par. – A GUI was implemented to display the various performance data, to set the filtering information and turn on and off the monitoring mechanism), via the second module.

18. **As to claim 8** (Original), Sridharan discloses the system wherein the graphical user interface is further operable to receive an input identifying requested application values to be displayed (Sec. 2, 4th Para. – cooperates with Graphical User Interface in the process of information visualization, implements the selective monitoring policy, and manages domains of local monitors; Sec. 5, 1st Para., 2nd Para. – GUI's main role is visualization of behavior of monitored systems' selected parts).

19. **As to claim 9** (Original), Sridharan discloses the system wherein the first module is further operable as a socket server and wherein the second module is further operable as a socket client such that the first and second modules communicate via a socket connection (e.g., Fig. 3 – System T and Performance Instrumentation, element of “PM GUI”; P. 3, last Par. – A GUI was implemented to display the various performance data, to set the filtering information and turn on and off the monitoring mechanism).

20. **As to claim 10** (Original), Sridharan discloses the system wherein the first module operable to read application values stored in the memory area by the application while the application is running (e.g., Fig. 3 – System T and Performance Instrumentation, element of “PI”; P. 3, 1st Par. – The Visibroker ORB, which was used to deploy the servers, provided the facility to load the Performance Instrumentation (PI) module to together with the server into a single address space while starting the server using the Java VM; P. 3, 2nd Par. – 4th Par.).

21. **As to claim 11** (Original), Sridharan discloses the system wherein first module operable to read application values stored in the memory area by the application without interfering with the operation of the application (e.g., Sec. 2 – Properties for Monitoring System, bullet 1 – bullet 3 – non-intrusiveness; selective on-line monitoring; selective on-line filtering).

22. **As to claim 12** (Currently Amended), Sridharan discloses a method of non-intrusively monitoring operation of an application (e.g., Abstract – a non-intrusive, reusable framework for collecting performance statistics of CORBA-based distributed systems is proposed; Sec. 2 – Properties for Monitoring System), comprising: running an application in a real-time manner; generating, by the application, application values during operation of the application (e.g., Fig. 3 – System T and Performance Instrumentation, elements of “S1”, “S2”, and “S3”; storing, by the application, the

application values in a memory area during the operation of the application; reading, by a monitor, the memory area used by the application to obtain the application values, wherein at least one of the application values is not output by the application (e.g., Fig. 3 – System T and Performance Instrumentation, element of “ORB”; Sec. 5 – Instrumentation Framework, 1st Par. – The CORBA Interceptor facility allows interception of a CORBA call made to a server either at the client or server side; the interceptor facility is a CORBA implementation or ORB’s feature); and displaying the application values read from the memory area (e.g., Fig. 3 – System T and Performance Instrumentation, element of “PM GUI”; P. 3, last Par. – A GUI was implemented to display the various performance data, to set the filtering information and turn on and off the monitoring mechanism).

23. **As to claim 13** (Currently Amended), Sridharan discloses the method further comprising: requesting, by a client, application values from the monitor (e.g., Fig. 3 – System T and Performance Instrumentation, element of “PI”; P. 3, 1st Par. – The Visibroker ORB, which was used to deploy the servers, provided the facility to load the Performance Instrumentation (PI) module to together with the server into a single address space while starting the server using the Java VM; P. 3, 2nd Par. – 4th Par.); and communicating the application variables from the monitor to the client (e.g., Fig. 3 – System T and Performance Instrumentation, element of “ORB”; Sec. 5 – Instrumentation Framework, 1st Par. – The CORBA Interceptor facility allows

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interception of a CORBA call made to a server either at the client or server side; the interceptor facility is a CORBA implementation or ORB's feature).

24. **As to claim 14** (Currently Amended), Sridharan discloses the method further comprising: requesting application values; running a plurality of applications in a real-time manner; generating application values stored in one or more memory areas during operation of the plurality of applications; reading the one or more memory areas used by the plurality of applications to obtain the application values (e.g., Fig. 3 – System T and Performance Instrumentation, element of “PI”; P. 3, 1st Par. – The Visibroker ORB, which was used to deploy the servers, provided the facility to load the Performance Instrumentation (PI) module to together with the server into a single address space while starting the server using the Java VM; P. 3, 2nd Par. – 4th Par.); and displaying the requested application values (e.g., Fig. 3 – System T and Performance Instrumentation, element of “ORB”; Sec. 5 – Instrumentation Framework, 1st Par. – The CORBA Interceptor facility allows interception of a CORBA call made to a server either at the client or server side; the interceptor facility is a CORBA implementation or ORB's feature).

25. **As to claim 17** (Original), Sridharan does not disclose the method further comprising: generating new application values by the application stored in the memory area, at least one of the new application values defined as a new value for a variable of the application; requesting, by the client, that the monitor re-read the application values

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stored in the memory area; re-reading, by the monitor, the memory area to obtain the new application values.

However, in an analogous art of Understanding the Behavior of Shared Memory Applications Using the SMiLE Monitoring Framework, Tao discloses the method further comprising: generating new application values by the application stored in the memory area, at least one of the new application values defined as a new value for a variable of the application; requesting, by the client, that the monitor re-read the application values stored in the memory area; re-reading, by the monitor, the memory area to obtain the new application values (e.g., Sec. IV. – Designing A Tool Environment on Top of The SmiLE Monitoring Approach", 5th Par. – A mechanism for mapping each memory location observed by the monitoring system to its corresponding program data structure identifier (procedure and variable names) is being implemented as well).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Tao into the Sridharan's system to further provide the method further comprising: generating new application values by the application stored in the memory area, at least one of the new application values defined as a new value for a variable of the application; requesting, by the client, that the monitor re-read the application values stored in the memory area; re-reading, by the monitor, the memory area to obtain the new application values in Sridharan system.

The motivation is that it would further enhance the Sridharan's system by taking, advancing and/or incorporating Tao's system which offers significant advantages that it

provides the programmer or system software with detailed information about all memory transactions over the network and the behavior of user-defined events as once suggested by Tao (e.g., Sec. I. – Motivation, 3rd Par., Lines 18-26).

26. **As to claim 18** (Original), Tao discloses the method wherein the monitor reads the application values while the application is running ((e.g., Sec. IV. – Designing A Tool Environment on Top of The SmiLE Monitoring Approach”, 5th Par. – A mechanism for mapping each memory location observed by the monitoring system to its corresponding program data structure identifier (procedure and variable names) is being implemented as well).

27. **As to claim 19** (Original), Sridharan discloses the method wherein the monitor is operable as a socket server and wherein the client is operable as a socket client such that the communication between the monitor and client is via a socket connection (e.g., Fig. 3 – System T and Performance Instrumentation, element of “ORB”; Sec. 5 – Instrumentation Framework, 1st Par. – The CORBA Interceptor facility allows interception of a CORBA call made to a server either at the client or server side; the interceptor facility is a CORBA implementation or ORB’s feature).

28. **As to claim 20** (Original), Sridharan does not disclose the method wherein the application values are further defined as a variable of the application and a value of the variable.

However, in an analogous art of Understanding the Behavior of Shared Memory Applications Using the SMiLE Monitoring Framework, Tao discloses the method wherein the application values are further defined as a variable of the application and a value of the variable (e.g., Sec. IV. – Designing A Tool Environment on Top of The SmiLE Monitoring Approach”, 5th Par. – A mechanism for mapping each memory location observed by the monitoring system to its corresponding program data structure identifier (procedure and variable names) is being implemented as well).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Tao into the Sridharan's system to further provide the method wherein the application values are further defined as a variable of the application and a value of the variable in Sridharan system.

The motivation is that it would further enhance the Sridharan's system by taking, advancing and/or incorporating Tao's system which offers significant advantages that it provides the programmer or system software with detailed information about all memory transactions over the network and the behavior of user-defined events as once suggested by Tao (e.g., Sec. I. – Motivation, 3rd Par., Lines 18-26).

29. Claims 5, 15, and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sridharan in view of Tao and further in view of Hiroshi Kashima (*An Approach for Constructing Web Enterprise Systems on Distributed Objects*, Jan., 2000, IBM) (hereinafter 'Kashima')

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30. **As to claim 5** (Original), Sridharan and Tao do not disclose the system wherein the first module is further operable to communicate the application values to the second module in hypertext markup language format.

However, in an analogous art of an approach for constructing web enterprise systems on distributed objects, Kashima discloses the system wherein the first module is further operable to communicate the application values to the second module in hypertext markup language format (i.e., Abstract, 1st Para.; Sec. 1-2, 1st Para.; Sec. 1-3, 5th Para., Lines 1-3).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Sridharan-Tao and the teachings of Kashima to further provide the system wherein the first module is further operable to communicate the application values to the second module in hypertext markup language format in Sridharan-Tao system.

The motivation is that it would enhance the Sridharan-Tao system by taking, advancing and/or incorporating the shared data which will enhance the expandability as a central repository, CORBA (common Object Request Broker Architecture) technologies, and COBOL support which is very important for the products that support mainframe systems as once suggested by Kashima (i.e., Abstract, 2nd Para.; Sec. 2, 2nd Para.; Sec. 3-5, sub-sec. of 'shared data'; Sec. 2-1, sub-sec. of 'Language Support').

31. **As to claim 15** (Original), Sridharan and Tao do not disclose the method wherein the memory area is further defined as a block of shared memory and wherein the

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monitor reads the at least some of the application variables stored in the block of shared memory.

However, in an analogous art of an approach for constructing web enterprise systems on distributed objects, Kashima discloses the method wherein the memory area is further defined as a block of shared memory and wherein the monitor reads the at least some of the application variables stored in the block of shared memory (Sec. 3-5, sub-sec. of Shared Data – this will enhance the expandability if it is centrally provided as in the concept of a repository, because any number of applications can access it).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Sridharan-Tao and the teachings of Kashima to further provide the method wherein the memory area is further defined as a block of shared memory and wherein the monitor reads the at least some of the application variables stored in the block of shared memory in Sridharan-Tao system.

The motivation is that it would enhance the Sridharan-Tao system by taking, advancing and/or incorporating the shared data which will enhance the expandability as a central repository, CORBA (common Object Request Broker Architecture) technologies, and COBOL support which is very important for the products that support mainframe systems as once suggested by Kashima (i.e., Abstract, 2nd Para.; Sec. 2, 2nd Para; Sec. 3-5, sub-sec. of 'shared data'; Sec. 2-1, sub-sec. of 'Language Support').

32. **As to claim 35** (Currently Amended), Sridharan and Tao do not disclose a system for non-intrusively monitoring COBOL application values, the system comprising: a memory area; a COBOL program stored on a computer-readable medium that generates program values and store the program values n the memory area during real-time operation of the COBOL program; and a COBOL monitor module stored on a computer-readable medium that shares the memory area with the COBOL program to read the program values stored in the memory area by the COBOL program during real-time operation of the COBOL program.

However, in an analogous art of an approach for constructing web enterprise systems on distributed objects, Kashima discloses a system for monitoring COBOL application values, the system comprising: a memory area; a COBOL program operable to generate program values and store the program values in the memory area during real-time operation of the COBOL program; and a COBOL monitor module operable to share the memory area with the COBOL program to read the program values stored in the memory area by the COBOL program (Sec. 1-4, 3rd Para. – in the case of CORBA, the connectivity with current system is kept high because of its mainframe and COBOL support); Sec. 2, 2nd Para. – the CORBA specification defines IDL, mapping to languages such as COBOL; Sec. 2-1, sub-sec. of 'Language Support' – the CORBA specification specifies the language mapping for COBOL; COBOL support is very important for the products that support mainframe systems).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Sridharan-Tao and the

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teachings of Kashima to further provide a system for monitoring COBOL application values, the system comprising: a memory area; a COBOL program operable to generate program values and store the program values in the memory area during real-time operation of the COBOL program; and a COBOL monitor module operable to share the memory area with the COBOL program to read the program values stored in the memory area by the COBOL program in Sridharan-Tao system.

The motivation is that it would enhance the Sridharan-Tao system by taking, advancing and/or incorporating the shared data which will enhance the expandability as a central repository, CORBA (common Object Request Broker Architecture) technologies, and COBOL support which is very important for the products that support mainframe systems as once suggested by Kashima (i.e., Abstract, 2nd Para.; Sec. 2, 2nd Para; Sec. 3-5, sub-sec. of 'shared data'; Sec. 2-1, sub-sec. of 'Language Support').

33. **As to claim 36** (Original), Sridharan and Tao do not disclose the system further comprising: a second COBOL program operable to generate second program values and store the program values in the memory area during real-time operation of the second COBOL program, and wherein the COBOL monitor module is further operable to read the second program values stored in the memory area by the second COBOL program.

However, in an analogous art of an approach for constructing web enterprise systems on distributed objects, Kashima discloses the system further comprising: a second COBOL program operable to generate second program values and store the

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program values in the memory area during real-time operation of the second COBOL program, and wherein the COBOL monitor module is further operable to read the second program values stored in the memory area by the second COBOL program (Sec. 1-4, 3rd Para. – in the case of CORBA, the connectivity with current system is kept high because of its mainframe and COBOL support); Sec. 2, 2nd Para. – the CORBA specification defines IDL, mapping to languages such as COBOL; Sec. 2-1, sub-sec. of 'Language Support' – the CORBA specification specifies the language mapping for COBOL; COBOL support is very important for the products that support mainframe systems).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Sridharan-Tao and the teachings of Kashima to further provide the system further comprising: a second COBOL program operable to generate second program values and store the program values in the memory area during real-time operation of the second COBOL program, and wherein the COBOL monitor module is further operable to read the second program values stored in the memory area by the second COBOL program in Sridharan system.

The motivation is that it would enhance the Sridharan system by taking, advancing and/or incorporating the shared data which will enhance the expandability as a central repository, CORBA (common Object Request Broker Architecture) technologies, and COBOL support which is very important for the products that support mainframe systems as once suggested by Kashima (i.e., Abstract, 2nd Para.; Sec. 2, 2nd Para; Sec. 3-5, sub-sec. of 'shared data'; Sec. 2-1, sub-sec. of 'Language Support').

34. **As to claim 37** (Original), Sridharan and Tao do not disclose the system further comprising: a second memory area; and a second COBOL program operable to generate second program values and store the program values in the second memory area during real-time operation of the second COBOL program, and wherein the COBOL monitor module is further operable to read the second program values stored in the second memory area by the second COBOL program.

However, in an analogous art of an approach for constructing web enterprise systems on distributed objects, Kashima discloses the system further comprising: a second memory area; and a second COBOL program operable to generate second program values and store the program values in the second memory area during real-time operation of the second COBOL program, and wherein the COBOL monitor module is further operable to read the second program values stored in the second memory area by the second COBOL program (Sec. 1-4, 3rd Para. – in the case of CORBA, the connectivity with current system is kept high because of its mainframe and COBOL support); Sec. 2, 2nd Para. – the CORBA specification defines IDL, mapping to languages such as COBOL; Sec. 2-1, sub-sec. of 'Language Support' – the CORBA specification specifies the language mapping for COBOL; COBOL support is very important for the products that support mainframe systems).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Sridharan-Tao and the teachings of Kashima to further provide the system further comprising: a second

memory area; and a second COBOL program operable to generate second program values and store the program values in the second memory area during real-time operation of the second COBOL program, and wherein the COBOL monitor module is further operable to read the second program values stored in the second memory area by the second COBOL program in Sridharan-Tao system.

The motivation is that it would enhance the Sridharan-Tao system by taking, advancing and/or incorporating the shared data which will enhance the expandability as a central repository, CORBA (common Object Request Broker Architecture) technologies, and COBOL support which is very important for the products that support mainframe systems as once suggested by Kashima (i.e., Abstract, 2nd Para.; Sec. 2, 2nd Para; Sec. 3-5, sub-sec. of 'shared data'; Sec. 2-1, sub-sec. of 'Language Support').

35. **As to claim 38** (Original), Sridharan and Tao do not disclose the system further comprising: a user interface operable to monitor and display the application values; and a client application in communication with the user interface and the COBOL monitor module, the client application operable to request the program variables of the COBOL program from the COBOL monitor module and provide the program variables to the user interface for display via the user interface responsive to a request from the user interface.

However, in an analogous art of an approach for constructing web enterprise systems on distributed objects, Kashima discloses the system further comprising: a user interface operable to monitor and display the application values; and a client application

in communication with the user interface and the COBOL monitor module, the client application operable to request the program variables of the COBOL program from the COBOL monitor module and provide the program variables to the user interface for display via the user interface responsive to a request from the user interface (Sec. 1-4, 3rd Para. – in the case of CORBA, the connectivity with current system is kept high because of its mainframe and COBOL support); Sec. 2, 2nd Para. – the CORBA specification defines IDL, mapping to languages such as COBOL; Sec. 2-1, sub-sec. of 'Language Support' – the CORBA specification specifies the language mapping for COBOL; COBOL support is very important for the products that support mainframe systems).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Sridharan-Tao and the teachings of Kashima to further provide the system further comprising: a user interface operable to monitor and display the application values; and a client application in communication with the user interface and the COBOL monitor module, the client application operable to request the program variables of the COBOL program from the COBOL monitor module and provide the program variables to the user interface for display via the user interface responsive to a request from the user interface in Sridharan system.

The motivation is that it would enhance the Sridharan-Tao system by taking, advancing and/or incorporating the shared data which will enhance the expandability as a central repository, CORBA (common Object Request Broker Architecture)

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technologies, and COBOL support which is very important for the products that support mainframe systems as once suggested by Kashima (i.e., Abstract, 2nd Para.; Sec. 2, 2nd Para; Sec. 3-5, sub-sec. of 'shared data'; Sec. 2-1, sub-sec. of 'Language Support').

36. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sridharan in view of Tao and further in view of Huang et al., (*Operating System Support for Flexible Coherence in Distributed Shared Memory*, 1996, *IEEE*) (hereinafter 'Huang' - art made of record)

37. **As to claim 16** (Original), Sridharan does not disclose the method further comprising providing memory manager and wherein the monitor registers with the memory manager to obtain a location of the memory area used by the application to store the application values.

However, in an analogous art of Operating System Support for Flexible Coherence in Distributed Shared Memory, Huang discloses the method further comprising providing memory manager and wherein the monitor registers with the memory manager to obtain a location of the memory area used by the application to store the application values (Fig. 2 – COMMOS Architecture, element of "Object Manager"; Sec. 3.4 – The COMMOS Architecture, 3rd Par.).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Huang into the Sridharan's system to further provide the method further comprising the step of using an adaptation

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mode selected from the group comprising: on demand; and autonomous in Sridharan system.

The motivation is that it would further enhance the Sridharan's system by taking, advancing and/or incorporating Huang's system which offers significant advantages that the major advantages are the openness and ability to enforce modularity behind memory protection boundaries, sometimes characterized as the separation of policy from mechanism as once suggested by Huang (e.g., Sec. 3.1 - Microkernels).

38. Claims 21-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sridharan in view of Huang.

39. **As to claim 21** (Currently Amended), Sridharan discloses a system for non-intrusively monitoring variables during operation of an application (e.g., Abstract – a non-intrusive, reusable framework for collecting performance statistics of CORBA-based distributed systems is proposed; Sec. 2 – Properties for Monitoring System).

Sridharan does not explicitly disclose a compile listing stored on a computer-readable medium having an address map with an offset for at least one variable of an application; and a module stored on a computer-readable medium that reads the compile listing and obtain the offset of the at least one variable of the application, the module attaches to an address space used by the application during real-time operation to obtain a value for the variable during the real-time operation of the application using the offset.

However, in an analogous art of Operating System Support for Flexible Coherence in Distributed Shared Memory, Huang discloses a compile listing stored on a computer-readable medium having an address map with an offset for at least one variable of an application; and a module stored on a computer-readable medium that reads the compile listing and obtain the offset of the at least one variable of the application, the module attaches to an address space used by the application during real-time operation to obtain a value for the variable during the real-time operation of the application using the offset (e.g., Sec. 3.2 – Typed Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location within the address space corresponding to the offset of the byte in the object).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Huang into the Sridharan's system to further provide a compile listing stored on a computer-readable medium having an address map with an offset for at least one variable of an application; and a module stored on a computer-readable medium that reads the compile listing and obtain the offset of the at least one variable of the application, the module attaches to an address space used by the application during real-time operation to obtain a value for the variable during the real-time operation of the application using the offset in Sridharan system.

The motivation is that it would further enhance the Sridharan's system by taking, advancing and/or incorporating Huang's system which offers significant advantages that the major advantages are the openness and ability to enforce modularity behind

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memory protection boundaries, sometimes characterized as the separation of policy from mechanism as once suggested by Huang (e.g., Sec. 3.1 - Microkernels).

40. **As to claim 22** (Original), Huang discloses the system wherein the module is further operable to read the compile listing and convert the variable to the offset (e.g., Sec. 3.2 – Typed Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location within the address space corresponding to the offset of the byte in the object).

41. **As to claim 23** (Original), Huang discloses the system wherein the module is further operable to search the compile listing and display a plurality of variables of the application for selection by a user (e.g., Sec. 3.2 – Typed Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location within the address space corresponding to the offset of the byte in the object; Sec. 4.3 – Programming Interface, 1st Par. – *AcquireLock()* – acquires a lock for an object fragment specified by object, offset and length, *ReleaseLock()*).

42. **As to claim 24** (Original), Huang discloses the system wherein the module is responsive to selection by the user of one of the plurality of variables to obtain the value for the selected one of the plurality of variables using the offset to locate the value of the variable in the address space (e.g., Sec. 3.2 – Typed Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location

within the address space corresponding to the offset of the byte in the object; Sec. 4.3 – Programming Interface, 1st Par. – *AcquireLock()*– acquires a lock for an object fragment specified by object, offset and length, *ReleaseLock()*).

43. **As to claim 25** (Original), Huang does not disclose the system wherein the module is further operable to display the selected one of the plurality of variables.

However, in an analogous art of Understanding the Behavior of Shared Memory Applications Using the SmiLE Monitoring Framework, Tao discloses the system wherein the module is further operable to display the selected one of the plurality of variables (e.g., Sec. IV. – Designing A Tool Environment on Top of The SmiLE Monitoring Approach”, 5th Par. – A mechanism for mapping each memory location observed by the monitoring system to its corresponding program data structure identifier (procedure and variable names) is being implemented as well).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Tao into the Huang’s system to further provide the system wherein the module is further operable to display the selected one of the plurality of variables in Huang system.

The motivation is that it would further enhance the Huang’s system by taking, advancing and/or incorporating Tao’s system which offers significant advantages that it provides the programmer or system software with detailed information about all memory transactions over the network and the behavior of user-defined events as once suggested by Tao (e.g., Sec. I. – Motivation, 3rd Par., Lines 18-26).

44. **As to claim 26** (Original), Sridharan discloses the system wherein the address space is further defined as a memory space and wherein the module attaches, using a socket layer, to the memory space used by the application (e.g., Abstract - a non-intrusive, reusable framework for collecting performance statistics of CORBA-based distributed systems).

45. **As to claim 27** (Original), Huang discloses the system wherein the module attaches, using the offset, to the memory space used by the application via an operating system service (e.g., Sec. 3.2 – Typed Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location within the address space corresponding to the offset of the byte in the object; Sec. 4.3 – Programming Interface, 1st Par. – *AcquireLock()*– acquires a lock for an object fragment specified by object, offset and length, *ReleaseLock()*).

46. **As to claim 28** (Original), Huang discloses the system wherein the monitor is further operable, using the compile listing, to query the address map for one or more of the variables of the application ((e.g., Sec. 3.2 – Typed Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location within the address space corresponding to the offset of the byte in the object; Sec. 4.3 – Programming Interface, 1st Par. – *AcquireLock()*– acquires a lock for an object fragment specified by object, offset and length, *ReleaseLock()*).

47. **As to claim 29** (Original), Huang discloses the system wherein the module is further defined as a subtask of the operating system (e.g., Sec. 3.2 – Typed Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location within the address space corresponding to the offset of the byte in the object; Sec. 4.3 – Programming Interface, 1st Par. – *AcquireLock()* – acquires a lock for an object fragment specified by object, offset and length, *ReleaseLock()*).

48. **As to claim 30** (Original), Huang discloses the system wherein the module is further operable to attach to the memory space where the application is operating and overwrite the value for the variable using the offset (e.g., Sec. 3.2 – Typed Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location within the address space corresponding to the offset of the byte in the object; Sec. 4.3 – Programming Interface, 1st Par. – *AcquireLock()* – acquires a lock for an object fragment specified by object, offset and length, *ReleaseLock()*).

49. **As to claim 31** (Original), Huang discloses the system wherein the module comprises: a reader component operable to read the compile listing and further operable to convert the at least one variable of the application to the offset; and a search component receiving the offset of the at least one variable from the reader component, the search component operable to attach to the application and further operable to locate the value of the variable using the offset (e.g., Sec. 3.2 – Typed

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Memory Objects – when an object is mapped, it can be read or written by simply reading or writing an address location within the address space corresponding to the offset of the byte in the object; Sec. 4.3 – Programming Interface, 1st Par. –

AcquireLock() – acquires a lock for an object fragment specified by object, offset and length, *ReleaseLock()*.

50. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sridharan in view of Huang and further in view of Tao.

51. **As to claim 32** (Original), Sridharan and Huang do not explicitly disclose the system further comprising display component operably coupled to the module to receive the value of the variable, the display component operable to display the value.

However, in an analogous art of Understanding the Behavior of Shared Memory Applications Using the SMiLE Monitoring Framework, Tao discloses the system further comprising display component operably coupled to the module to receive the value of the variable, the display component operable to display the value (e.g., Sec. IV. – Designing A Tool Environment on Top of The SmiLE Monitoring Approach”, 5th Par. – A mechanism for mapping each memory location observed by the monitoring system to its corresponding program data structure identifier (procedure and variable names) is being implemented as well).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Tao into the Sridharan-

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Huang's system to further provide the system further comprising display component operably coupled to the module to receive the value of the variable, the display component operable to display the value in Sridharan-Huang system.

The motivation is that it would further enhance the Sridharan-Huang's system by taking, advancing and/or incorporating Tao's system which offers significant advantages that it provides the programmer or system software with detailed information about all memory transactions over the network and the behavior of user-defined events as once suggested by Tao (e.g., Sec. I. – Motivation, 3rd Par., Lines 18-26).

52. **As to claim 33** (Original), Tao discloses the system wherein the display component is operable to employ the value to display a heartbeat (e.g., Sec. I – Motivation, 3rd Par., Lines 18-26 – it provides the programmer or system software with detailed information about all memory transactions over the network and the behavior of user-defined events).

53. **As to claim 34** (Original), Tao discloses the system wherein the display component is operable to employ the value to display as a percentage complete heartbeat (e.g., Sec. I – Motivation, 3rd Par., Lines 18-26 – it provides the programmer or system software with detailed information about all memory transactions over the network and the behavior of user-defined events).

Conclusion

54. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben C. Wang whose telephone number is 571-270-1240. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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TUAN DAM
SUPERVISORY PATENT EXAMINER

BCW *BW*

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